

ABSTRACT OF THE DISCLOSURE

A system to provide fractional bandwidth data transmission includes a network processor, physical layer device, or link layer device {"data device"} and a plurality of link layer devices that are coupled to a plurality of input-output ports. The link layer devices are coupled in a serial daisy chain fashion and pass data via a plurality of data channels. The first linked layer device is coupled to the data device and receives data therefrom and the last linked layer device is coupled to the data device and transmits data thereto forming a ring network that includes all of the link layer devices and the data device. Data received from the data device is contained in data packets that contain a destination identifier and the data. Each link layer device receives input data packets and separates the data packets based on the destination identifier contained therein. Data packets having a destination identifier corresponding to one of the plurality of input-output ports coupled to that particular linked layer device are diverted to the identified input-output port. The remaining data, and any data generated by that link layer device, is provided to the next adjacent down-stream link layer device. Data flow control is provided in an upstream direction from one link layer device to the next adjacent up-stream link layer device as a plurality of status indicators that correspond to the plurality of data channels. Each link layer device is responsive to the plurality of status indicators by not transmitting data on data channels having a corresponding status indicator indicative that no data is to be transmitted.

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